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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/021,988

12/13/2001

James M. Florence

SLA0354

7651

7590

12/22/2005

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EXAMINER

LAVARIAS, ARNEL C

ART UNIT

PAPER NUMBER

2872

DATE MAILED: 12/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

EV

<b>Office Action Summary</b>	<b>Application No.</b> 10/021,988	<b>Applicant(s)</b> FLORENCE, JAMES M.	
	<b>Examiner</b> Amel C. Lavarias	<b>Art Unit</b> 2872	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 October 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 22-40 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 22-33 is/are allowed.
- 6) ☒ Claim(s) 34-40 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                                        |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

Art Unit: 2872

### DETAILED ACTION

1. In view of the appeal brief filed on 10/14/05, PROSECUTION IS HEREBY REOPENED. New grounds of rejections are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:



Drew Dunn  
Supervisory Patent Examiner  
GAU 2872

**DREWA. DUNN**  
**SUPERVISORY PATENT EXAMINER**

***Response to Arguments***

2. The submission of a Notice of Appeal and an Appeal Brief filed 10/14/05 is acknowledged.
3. In the Appeal Brief filed 10/14/05, the Applicant sets forth revised arguments (with respect to previous arguments filed in the submission dated 5/27/05) with regard to the patentability of independent Claims 22 and 34 (See in particular Section 2 of the Arguments on Pages 5-8 of the Appeal Brief filed 10/14/05). After reviewing the Applicant's arguments and remarks, as well as the Ito et al. and Matsuda references, the Examiner agrees that the combined teachings of Ito et al. and Matsuda fail to teach or reasonably suggest an air gap cavity between the prism second surface and the polarizer second surface central region, surrounded by the adhesive formed between the polarizer second surface perimeter region and the prism second surface. The rejections of Claims 22-33 in Sections 8-13 of the Office Action dated 8/4/05 are respectfully withdrawn.
4. However, the Examiner additionally notes that the features upon which Applicant relies (i.e., an air gap cavity between the prism second surface and the polarizer second surface central region, surrounded by the adhesive formed between the polarizer second surface perimeter region and the prism second surface) are not recited in rejected Claim 34. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).
5. With respect to the objections to the specification in Section 6 of the Office Action dated 8/4/05, the Examiner has reviewed Applicant's remarks and arguments (See

specifically Section 1 of the Arguments on Pages 4-5 of the Appeal Brief filed 10/14/05).

The Examiner notes that, as per 37 CFR 1.113 and MPEP 1201, objections to the specification are not appealable to the Board of Patent Appeals and Interferences. After reviewing the limitations defining the maximum adhesive thickness and the air gap cavity area in Claims 22-25, the Examiner withdraws the objections to the Claims in Section 6 of the Office Action dated 8/4/05.

6. Claims 34-40 are now rejected as follows.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 34, 39-40 are rejected under 35 U.S.C. 102(e) as being anticipated by Ito et al.

(U.S. Patent Application Publication US2003/0179345), of record.

Ito et al. discloses a polarized light beam splitter assembly (See for example Figure 16), the assembly comprising a prism (See 10, 40 in Figure 16) having a source axis oriented to accept light in a first polarization (See incident light having both polarizations in Figure 16) and an emission axis to supply light in a second polarization (See either reflected or transmitted light in Figure 16); a polarizer embedded in the prism (See 21 in Figure 16), including a glass substrate with parallel first and second surfaces (See 210 in

Figure 16; Paragraph 0094), and a wire grid (See 211 in Figure 16) formed overlying the glass substrate surface; and an air gap cavity (See 212 in Figure 16) interposed between the glass substrate first surface and the prism. Ito et al. additionally discloses the assembly further including a light source to supply the light (See for example 110 in Figures 10, 18); a reflection device (See for example 300 in Figures 1, 8, 10); and wherein the wire grid accepts light from the light source and redirects the light toward the reflection device (See Figure 10); and the reflection device is chosen from the group including a liquid crystal display panel, a mirror, and a quarter wave plate (See 300 in Figures 1, 8, 10).

9. Claims 34-35, 37, 39-40 are rejected under 35 U.S.C. 102(b) as being anticipated by Matsuda (U.S. Patent No. 5703861), of record.

Matsuda discloses a polarized light beam splitter assembly (See for example Figures 1, 6, 8), the assembly comprising a prism (See 31, 32 in Figure 8) having a source axis oriented to accept light in a first polarization (See incident light '+1' and '-1' to elements 34A and 34B in Figure 8) and an emission axis to supply light in a second polarization (See either reflected or transmitted light from elements 34A, 34B in Figure 8); a polarizer embedded in the prism (See 34A, 34B, 32 in Figure 8), including a glass substrate with parallel first and second surfaces (See 32 in Figure 8; col. 5, lines 35-64), and a wire grid (See 34A, 34B in Figure 8) formed overlying the glass substrate surface; and an air gap cavity (See gap between 31, 32 in Figure 8) interposed between the glass substrate first surface and the prism. Matsuda additionally discloses the prism having a first interior surface and a second interior surface (See interior surfaces of 31, 32 in Figure 8); wherein

the glass substrate first surface has a perimeter; and the assembly further comprising an adhesive having a uniform maximum thickness interposed between the glass substrate first surface perimeter and the prism first interior surface (See rectangular solder adhesive spacers connecting 31, 32 in Figure 8); and wherein the air gap cavity is formed by prism first interior surface, the glass substrate first surface, and the adhesive (See Figure 8); the wire grid has a height and wherein the adhesive maximum thickness is greater than the wire grid height (See 34A, 34B, rectangular solder adhesive spacers connecting 31, 32 in Figure 8); a light source to supply the light (See 'LD' in Figures 1, 6); a reflection device (See for example 46A, 46B in Figure 8); and wherein the wire grid accepts light from the light source and redirects the light toward the reflection device (See Figures 1, 6, 8); and the reflection device is chosen from the group including a liquid crystal display panel, a mirror, and a quarter wave plate (See 46A, 46B in Figures 1, 6, 8; col. 5, lines 44-64).

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuda in view of Yamada et al. (U.S. Patent No. 6013339), of record, and Ishiwatari (JP 11007027 A), of record.

Matsuda discloses the invention as set forth above in Claims 34-35, except for uniformly sized spacers embedded in the adhesive. However, Yamada et al. teaches that spacers may be used in the periphery of the device to attach the substrates together and to form the internal gap, and that the spacers may be in the form of rigid glass beads, all of uniform diameters to provide a gap of uniform thickness (See 2 in Figure 5; col. 10, lines 54-64). Further, Ishiwatari teaches that such uniformly sized spacer beads may be embedded in the adhesive (See Abstract; Figures 1-2), such that air space cavity is the diameter of the spacer beads. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have uniformly sized spacers embedded in the adhesive, as taught by Yamada et al. and Ishiwatari, in the polarized light beam splitter assembly of Matsuda, for the purpose of sealing and protecting the wire grid polarizer, as well as provide a uniform thickness spacing between the wire grid polarizer and the exposed internal surface of the beam splitter prism, eliminating possible damage to the wire grid polarizer due to contacting.

12. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuda.

Matsuda discloses the invention as set forth above in Claims 34-35, except for the adhesive maximum thickness being in the range of one to thirty  $\mu\text{m}$ . It would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust the adhesive thickness to be in the range of one to thirty  $\mu\text{m}$ , since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. One would have been motivated to have the adhesive maximum thickness have a width in the range of one to



thirty  $\mu\text{m}$  for the purpose of reducing fabrication costs (since larger air gap widths require a spacer with an appropriately larger thickness or diameter) and alignment time, while providing a controlled air gap spacing. *In re Aller*, 220 F.2d 618, 195 USPQ 6 (CCPA 1977). See also *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

***Allowable Subject Matter***

13. Claims 22-33 are allowed.
14. The following is a statement of reasons for the indication of allowable subject matter:  
  
Claim 22 is allowable over the cited art of record for at least the reason that the cited art of record fails to teach or reasonably suggest a polarized light beam splitter assembly, as generally set forth in Claim 22, the assembly including, in combination with the features recited in Claim 22, an air gap cavity between the prism second surface and the polarizer second surface central region, surrounded by an adhesive formed between the polarizer second surface perimeter region and the prism second surface. Claims 23-33 are dependent on Claim 22, and hence are allowable for at least the same reasons Claim 22 is allowable.

***Conclusion***

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arnel C. Lavarias whose telephone number is 571-272-2315. The examiner can normally be reached on M-F 9:30 AM - 6 PM EST.

Art Unit: 2872

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Arnel C. Lavarias  
Patent Examiner  
Group Art Unit 2872  
12/19/05